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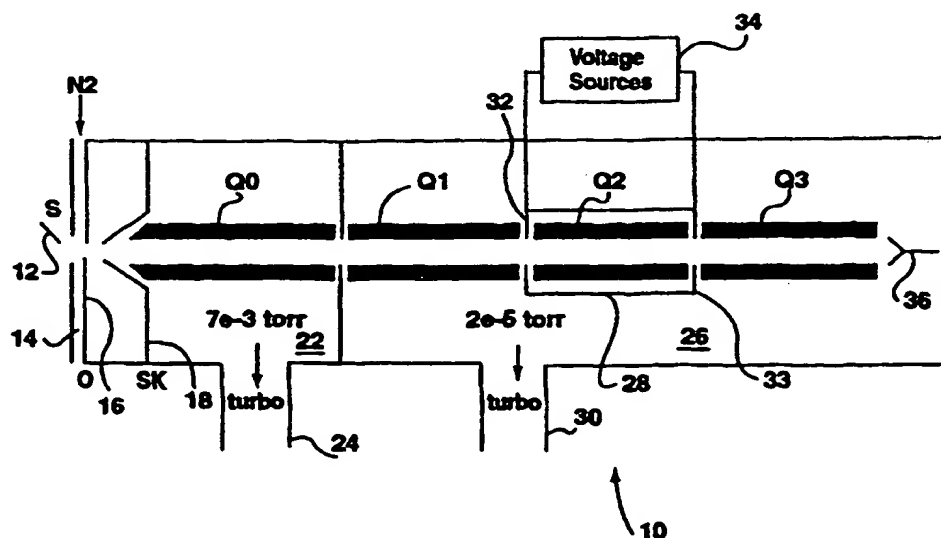
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(54) Title: METHOD AND APPARATUS FOR MULTIPLE STAGES OF MASS SPECTROMETRY



(57) Abstract

A method of and apparatus for analyzing a stream of ions first subjects a stream of ions to a first mass analysis step, to select ions having a mass-to-charge ratio in a first desired range; this enables a mass analyzer with high resolution to be used. The selected ions are then passed into a radiofrequency linear ion trap containing a gas. The trapped ions are caused to collide with the gas, either by being injected with a high axial energy or by application of external excitation to cause fragmentation. Fragment ions of a given mass-to-charge ratio can then be isolated and excited to produce fragments of fragments. This process can be repeated to give multiple steps of mass spectrometry, MS<sup>n</sup>. The fragment ions, and undissociated precursors are then passed out of the linear ion trap and subjected to a further mass analysis step, for example in a time of flight device, to determine the mass spectrum of the ions.